

466-18.

Mica Schist Lining or Fire Stone

(Natural Fire Brick)

Cheaper than Fire Brick
Better than Fire Brick



Showing Veins in Mica Schist Bank

Mined by

**J. W. Paxson Co.
PHILADELPHIA, PA.**

Also Foundry Equipment, Sands
Gravels, Clays, Sand Blast Sys-
tems, Designing, Engineering
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Showing Over-Head Car-Loading Device

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(Natural Fire Brick)

Cheaper than Fire Brick : Better than Fire Brick

No. 145. Mica Schist Lining

MICA SCHIST (a natural Fire Brick) for lining Bessemer Steel Converters, Cupolas, Lime and Cement Kilns, Acid Open-Hearth Furnaces, Reverberatory Furnaces, Air Furnaces and any other Furnaces or Kilns subjected to intense heat. It is shipped by us just as it is quarried out of the earth in irregular shapes and has the appearance of Building Stone. It is, as a general thing, softer and more friable than granite, and has to be handled carefully to prevent it being broken in transit. The softer the Stone the more refractory it is. It can easily be broken and chipped into

shape with a mason's ordinary chipping hammer. It is not necessary to chip it into perfect cubes for any purpose as, after the Stone is lined in the Furnace or Cupola, the rougher edges become wonderfully smooth after the abrasion of the stock as it drops in melting, burning or dropping out. The small parts and dust should be broken up in a Crushing or Cinder Mill, mixed with water and used to fill up the voids between the Stone while laying same. In building bridge walls or arches it may be necessary to mix a very small quantity of Fire Clay with this dust so as to assist in holding the arch in position until the first fire has touched it, when it all seems to combine into a solid mass and the surface becomes glazed over. The life of Mica Schist, under ordinary circumstances, is at least three times as long as the best Fire Brick. The cost for the larger and most expensive selections of the Stone is only one-third the cost of Fire Brick. The rate of freight on the material (as it bears a special commodity rate) is consequently less than Fire Brick. There need be no waste, as all of the smaller stones should be fitted in to the wall of the Cupola or Furnace wherever built. The Stones should be laid preferably on edge, perpendicularly, like books are laid on a shelf in a bookcase, with the edges of the Stone inward exposed to the heat and abrasion, as it is impossible for the edge to spall off. Spalling would occur, provided the Stone was laid flatwise in the Furnace or Cupola. Mica Schist is laminated Silica running from 98 to 99% in Silica, and having been deposited by Nature like leaves, laid side by side, or like ordinary Stove Mica. Mica Schist and Mica itself are the only geological formations with this peculiarity. Mica Schist is shipped either in gondola or box cars, depending upon the distance it has to be carried, and in pieces weighing from what we call one-man- to three-man-size Stone, weighing from 25 lbs. to 250 lbs. each. It is more economical to the user to receive it in its natural state and not have it cut or broken to size, as in sawing or cutting it about three-fourths of it is wasted,



Loading Cars

and of course there has to be necessarily a charge made for the quarrying and handling of this waste. One peculiarity of Mica Schist is that it has neither expansion nor contraction under heat or cold, and while it is not recommended to lay it in a Furnace packed tight against the shell, yet that can be done without any danger of the expansion bursting the shell. It is generally laid in a Furnace carelessly and the finer particles dropped in dry behind the larger pieces.

No. 146. Mica Schist Grits

MICA SCHIST itself is crushed through a Mill and the particles that pass through the different-size screens are used for various purposes. The particles which pass through $\frac{1}{2}$ " mesh and over $\frac{1}{4}$ " are what we call "Grits." This is also called our Pea Size and is used as a mixture with Silicate of Soda and other bonds to line Bessemer Converters,

Side-Blow Converters, Gas Furnaces, and as a Furnace Bottom for Heating Furnaces where the very largest billets are used. The Mica Schist Grits in a Heating Furnace will glaze perfectly hard, and the largest billet can be slid over them without fracturing or grinding the bottom. It is also used by many steel foundries as a mixture in making their Steel Molding Sand, especially where the Sand is too fine. It is mixed in the Pan Grinder with Molding Sand in proportions of about one shovelful of the Grits to three of the Sand. This mixture run through the Pan Grinder a short time naturally is perfectly homogeneous, and when used with the very sharpest, highest grade of Silica Sand and a small proportion of Welsh Mt. Clay will make, without cutting or scabbing, the very heaviest steel castings or billets ever manufactured. These Grits are often used in the Pug Mill with Silica Sand for manufacturing Silica Brick. This material being more highly refractory than the average Silica Sand adds life to the Brick and assists in resisting the natural expansion and contraction of the Crushed Silica. In mixing the Grits with Cement, Ground Ganister or Fire Mortar to mold into different shapes it should be tamped down or pressed into the molds with a power press.

In lining a Converter, Furnace or Kiln with Grits, a skeleton frame should be made to fit on the inside so that the Grits and Fire Mortar can be rammed into place and held there until dry enough to withdraw the frame. This is necessary from the fact that the very smallest quantity of Fire Mortar or Clay should be used in mixing up the Grits.

No. 147. Mica Schist

Ground fine and medium

WE have a finer Grit which is sold almost entirely for chicken feed, some steel foundries purchase it for other purposes, but as the manipulations of it and the fact that there is a very small amount of it secured in the operation, it becomes considerably more costly to handle and sell than any of the other sizes. The finer particles from the dust up to about $\frac{1}{4}$ " is sold to steel foundries as Ground Mica Schist or Ground Silica Rock, and is becoming more generally used as its good qualities are becoming known. We recommend it in preference to any other Ground Silica Rock that is mined today.

We are fortunate in having bought and leased enough land containing Mica Schist to last us approximately for the next twenty or thirty years, even if orders should double or quadruple within that time, those we are receiving now. No one should hesitate to use this material, therefore, for fear that the output will be closed down within any reasonable period of time, as in addition to the mines we have now in the neighborhood of Glenside, Pa., we have others secured in other parts of the country which have been as yet unopened, although they have been prospected.

Cupola Blocks
Furnace Bricks Silica Bricks
Fire Mortar



Also
Carried in stock for shipment in
Barrels, Wagon-loads and
Car-loads



J. W. Paxson Co.
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